

REMARKS

Herein, the "Action" or "Office Action" refers to the Office Action dated March 3, 2004.

Applicant respectfully requests reconsideration and allowance of all of the claims of the present application. Claims 1-21 and 26-35 are presently pending. Claims 1, 10, 15, 26 and 32 are amended herein. Claims 22-25 and 36-38 are canceled herein. No new claims are added herein.

Rejections under 35 U.S.C. § 103

Claims 1-21, 25-31 and 35-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over prior art admitted by the applicant in the specification in the instant application in view of U.S. Patent No. 5,282,754 to Kish et al (hereinafter "Kish").

Claims 22-24 and 32-34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over prior art admitted by the applicant in the specification in the instant application.

Applicant traverses these rejections and asks that they be withdrawn and the case passed along to issuance.

Claims 1-9

As amended, claim 1 recites an apparatus comprising [emphasis added]:

- a first device;
- a first connector coupled to the first device;
- a second connector coupled to the first connector through a first plurality of conductors, wherein alternating pairs of conductors are

reversed *such that at least one pair of conductors is reversed at a position closer to the first connector than the second connector*, and

- a second device coupled to the second connector through a second plurality of conductors.

In making out the rejection of claim 1, the Office Action argues that Kish teaches reversing alternating pairs of conductors to eliminate or reduce crosstalk. The Office cites to Fig. 4 and column 4, lines 43-62, of Kish to support its argument, the text of which is reproduced below [emphasis added]:

In practice, as may be seen from Fig. 4, it is considered that primary windings of an effective transformer are produced through the electrical pathways associated with the conductors 84 and 86. Secondary windings will be provided by the immediately adjacent pathways through and associated with the cross-over conductors 88 and 90. Because of the crossover of the conductors 88 and 90, then the *area 96* which is bounded at its sides by the conductors 92 and 94 and the conductors 88 and 90 as far as the crossover position 98 is *substantially equal to the area 100* bounded by the remainder of the conductors 88 and 90 and the conductors 34 and 36. If the voltage induced in the secondary winding is positive in the section associated with the area 96, then it is negative in the section associated with the area 100. As a result *if the areas 96 and 100 are substantially equal* then the crosstalk through the connector assembly of connectors 10, 50 and 60 is effectively reduced to zero. The slight differences in the areas 96 and 100 will produce negligible cross-talk.

As shown, Kish requires that the crossover be such that the resulting areas 96 and 100 are *substantially equal*. In order for areas 96 and 100 to be substantially equal, the crossover must be at the *midpoint* between the conductor pairs 92/96 and 34/36. In contrast, Applicant's claim 1 recites that alternating pairs of conductors are reversed *such that at least one pair of conductors is reversed at a position closer to the first connector than the second connector*.

1 As such, Kish teaches *directly away* from Applicant's claimed subject matter.
2 Accordingly, for at least this reason, claim 1 is allowable.

3 Claims 2-9 depend from claim 1 and, as such, are allowable as depending
4 from an allowable base claim. These claims are also allowable for their own
5 recited features which, in combination with those recited in claim 1, are neither
6 shown nor suggested by the references of record either singly or in combination
7 with one another.

8
9 **Claims 10-14**

10 As amended, claim 10 recites an apparatus comprising [emphasis added]:

- 11 • a first integrated circuit including a plurality of differential drivers;
- 12 • a first connector coupled to the first integrated circuit;
- 13 • a second connector coupled to the first connector through a plurality
14 of electrical conductors, wherein alternating pairs of the electrical
15 conductors are reversed *such that at least one pair of conductors is*
16 *reversed at a position closer to the first connector than the second*
17 *connector*; and
- 18 • a second integrated circuit coupled to the second connector, wherein
19 the second integrated circuit includes a plurality of differential
20 receivers.

21 In making out the rejection of claim 10, the Office Action again argues that
22 Kish teaches reversing alternating pairs of conductors to eliminate or reduce
23 crosstalk. The Office cites to Fig. 4 and column 4, lines 43-62, of Kish to support
24 its argument, the text of which is reproduced above.

25 As discussed above in relation to claim 1, Kish requires that the crossover
be such that the resulting areas 96 and 100 are *substantially equal*. In order for
areas 96 and 100 to be substantially equal, the crossover must be at the *midpoint*
between the conductor pairs 92/96 and 34/36. In contrast, Applicant's claim 10
recites that alternating pairs of the electrical conductors are reversed *such that at*

1 *least one pair of conductors is reversed at a position closer to the first connector*
2 *than the second connector.* As such, Kish teaches *directly away* from Applicant's
3 claimed subject matter. Accordingly, for at least this reason, claim 10 is
4 allowable.

5 Claims 11-14 depend from claim 10 and, as such, are allowable as
6 depending from an allowable base claim. These claims are also allowable for their
7 own recited features which, in combination with those recited in claim 10, are
8 neither shown nor suggested by the references of record either singly or in
9 combination with one another.

10
11 **Claims 15-21**

12 As amended, **claim 15** recites an apparatus comprising [emphasis added]:

- 13 • a printed circuit board;
- 14 • a plurality of connectors disposed on the printed circuit board;
- 15 • a first integrated circuit disposed on a first substrate, wherein the
16 first substrate is configured to be coupled to one of the plurality of
17 connectors;
- 18 • a second integrated circuit disposed on a second substrate, wherein
19 the second substrate is configured to be coupled to one of the
20 plurality of connectors; and
- 21 • a first plurality of electrical conductors coupled to the plurality of
22 connectors, wherein alternating pairs of conductors between adjacent
23 connectors are reversed *such that at least one pair of conductors is*
24 *reversed at a position closer to one of the plurality of connectors*
25 *than another of the plurality of connectors.*

21 In making out the rejection of claim 15, the Office Action again argues that
22 Kish teaches reversing alternating pairs of conductors to eliminate or reduce
23 crosstalk. The Office cites to Fig. 4 and column 4, lines 43-62, of Kish to support
24 its argument, the text of which is reproduced above.
25

1 As discussed above in relation to claims 1 and 10, Kish requires that the
2 crossover be such that the resulting areas 96 and 100 are *substantially equal*. In
3 order for areas 96 and 100 to be substantially equal, the crossover must be at the
4 *midpoint* between the conductor pairs 92/96 and 34/36. In contrast, Applicant's
5 claim 15 recites that alternating pairs of conductors between adjacent connectors
6 are reversed *such that at least one pair of conductors is reversed at a position*
7 *closer to one of the plurality of connectors than another of the plurality of*
8 *connectors*. As such, Kish teaches *directly away* from Applicant's claimed subject
9 matter. Accordingly, for at least this reason, claim 15 is allowable.

10 **Claims 16-21** depend from claim 15 and, as such, are allowable as
11 depending from an allowable base claim. These claims are also allowable for their
12 own recited features which, in combination with those recited in claim 15, are
13 neither shown nor suggested by the references of record either singly or in
14 combination with one another.

15
16 **Claims 26-31**

17 As amended, claim 26 recites a method comprising [emphasis added]:

- 18 • generating a plurality of differential signals;
- 19 • transmitting the plurality of differential signals through a first
20 connector and a second connector to a plurality of differential
21 receivers;
- 22 • reversing the polarity of alternating differential signals *at a position
closer to the first connector than the second connector*; and
- 23 • reversing the polarity of alternating differential signals between the
24 second connector and the plurality of differential receivers.

25 In making out the rejection of claim 26, the Office Action again argues that
Kish teaches reversing alternating pairs of conductors to eliminate or reduce

1 crosstalk. The Office cites to Fig. 4 and column 4, lines 43-62, of Kish to support
2 its argument, the text of which is reproduced above.

3 As discussed above in relation to claims 1, 10, and 15, Kish requires that
4 the crossover be such that the resulting areas 96 and 100 are *substantially equal*.
5 In order for areas 96 and 100 to be substantially equal, the crossover is at the
6 *midpoint* between the conductor pairs 92/96 and 34/36. In contrast, Applicant's
7 claim 26 recites the act of reversing the polarity of alternating differential signals
8 *at a position closer to the first connector than the second connector*. As such,
9 Kish teaches *directly away* from Applicant's claimed subject matter. Accordingly,
10 for at least this reason, claim 26 is allowable.

11 Claims 27-31 depend from claim 26 and, as such, are allowable as
12 depending from an allowable base claim. These claims are also allowable for their
13 own recited features which, in combination with those recited in claim 26, are
14 neither shown nor suggested by the references of record either singly or in
15 combination with one another.

16
17 **Claims 32-35**

18 As amended, claim 32 recites a method comprising [emphasis added]:

- 19 • modifying a transmitter package such that the coupling coefficient of
20 the transmitter package is substantially the same as the coupling
21 coefficient of a receiver package;
22
23
24
25

- 1 • transmitting multiple pairs of differential signals using the transmitter package;
- 2 • reversing polarity of alternating pairs of differential signal conductors *such that at least one pair of conductors is reversed at a*
- 3 *position closer to the transmitter package than the receiver*
- 4 *package*; and
- 5 • receiving the multiple pairs of differential signals using the receiver package.

6
7 In making out the rejection of claim 32, the Office Action states that "the
8 admitted prior art does not disclose that the first device and second device have the
9 same inductive coefficients." Applicant agrees. However, the Office Action then
10 takes Official Notice and argues that "implementing a system, which has a
11 mismatch problem between two communication ends, with a matching circuit at
12 the receiving end of the two communication ends in order to overcome the
13 mismatch is well-known in the art." Applicant respectfully submits that, even if
14 this were true, AAPA does not teach or suggest reversing polarity of alternating
15 pairs of differential signal conductors *such that at least one pair of conductors is*
16 *reversed at a position closer to the transmitter package than the receiver*
17 *package*. Accordingly, for at least this reason, claim 32 is allowable.

18 Claims 33-35 depend from claim 32 and, as such, are allowable as
19 depending from an allowable base claim. These claims are also allowable for their
20 own recited features which, in combination with those recited in claim 32, are
21 neither shown nor suggested by the references of record, either singly or in
22 combination with one another.

Conclusion

All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Office Action.

Respectfully Submitted,

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